

Title (en)
MAIN ELECTRIC MOTOR FOR RAILWAY VEHICLE

Title (de)
HAUPTELEKTROMOTOR FÜR SCHIENENFAHRZEUG

Title (fr)
MOTEUR ÉLECTRIQUE PRINCIPAL POUR VÉHICULE FERROVIAIRE

Publication
EP 2763287 B1 20180110 (EN)

Application
EP 11873200 A 20110930

Priority
JP 2011072642 W 20110930

Abstract (en)
[origin: EP2763287A1] The main motor for a railway vehicle is rotationally driven upon receiving an AC power supplied from an inverter circuit that includes a switching element formed by using a wide bandgap semiconductor. The inverter circuit applies a voltage having a PWM waveform to the main motor for a railway vehicle in at least part of a speed range of an electric vehicle. The stator of the main motor for a railway vehicle is configured to include an annular stator core provided with a plurality of slots in a circumferential direction and coils that are wound on the stator core and are accommodated in the slots, and includes a stator winding that is three-phase star-connected and is composed of parallel circuits the number of which is the same as the number of poles for each phase.

IPC 8 full level
H02K 3/04 (2006.01); **H02K 3/28** (2006.01); **H02K 3/50** (2006.01); **H02K 3/12** (2006.01)

CPC (source: EP US)
H02K 3/28 (2013.01 - EP US); **H02K 3/12** (2013.01 - EP US); **H02K 3/38** (2013.01 - US); **H02K 2203/09** (2013.01 - US);
H02P 25/22 (2013.01 - EP US); **Y02T 10/64** (2013.01 - EP US)

Citation (examination)
• JP 2000350396 A 20001215 - HITACHI LTD
• US 2778962 A 19570122 - TAYLOR HAMILTON D
• US 2011101906 A1 20110505 - TAGOME MASAKI [JP]

Citation (opposition)
Opponent : Siemens Mobility GmbH
• US 7554238 B2 20090630 - MIYASHITA TOSHIHITO [JP], et al
• WO 2011093202 A1 20110804 - MITSUBISHI ELECTRIC CORP [JP], et al
• DE 112011100373 T5 20121129 - MITSUBISHI ELECTRIC CORP [JP]
• WO 2008107992 A1 20080912 - MITSUBISHI ELECTRIC CORP [JP], et al
• EP 2131488 A1 20091209 - MITSUBISHI ELECTRIC CORP [JP]
• JP 2011078296 A 20110414 - MITSUBISHI ELECTRIC CORP
• US 2010277029 A1 20101104 - FUJITA MASAFUMI [JP], et al
• WO 2011108736 A1 20110909 - NIDEC CORP [JP], et al
• EP 2259419 A1 20101208 - DAIKIN IND LTD [JP]
• JP 2010259326 A 20101111 - HITACHI LTD
• JP 2011182512 A 20110915 - NSK LTD
• JP 2000350396 A 20001215 - HITACHI LTD
• US 2778962 A 19570122 - TAYLOR HAMILTON D
• US 2011101906 A1 20110505 - TAGOME MASAKI [JP]
• TIEFU ZHAO; JUN WANG; ALEX Q HUANG; ANANT AGARWAL: "Comparisons of SiC MOSFET and Si IGBT Based Motor Drive Systems", INDUSTRY APPLICATIONS CONFERENCE, 2007. 42ND IAS ANNUAL MEETING. CONFERENCE RECORD OF THE 2007 IEEE., September 2007 (2007-09-01), pages 331 - 335, XP031145948

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
EP 2763287 A1 20140806; EP 2763287 A4 20151118; EP 2763287 B1 20180110; AU 2011377670 A1 20140501; AU 2011377670 B2 20150702; CN 103828195 A 20140528; CN 103828195 B 20160713; JP 5615443 B2 20141029; JP WO2013046459 A1 20150326; KR 101616657 B1 20160428; KR 20140068223 A 20140605; US 10367388 B2 20190730; US 2014319952 A1 20141030; WO 2013046459 A1 20130404

DOCDB simple family (application)
EP 11873200 A 20110930; AU 2011377670 A 20110930; CN 201180073703 A 20110930; JP 2011072642 W 20110930; JP 2013535797 A 20110930; KR 20147010922 A 20110930; US 201114346239 A 20110930